

# Is the tail wagging the dog? Perversity in academic rewards

COASP  
Lisbon, Portugal  
21 September 2017

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These slides are available:  
<https://www.repository.cam.ac.uk/handle/1810/267263>

# Summary

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- A bit of philosophy
- Considering the problems caused by the current reward system
- A romp through some of the incentives offered by Universities
- Considering alternative metrics
- Proposing a solution
- Recent examples of a move away from the status quo

# Normative Structure of Science

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Robert K Merton, “The Normative Structure of Science”, 1942 essay in  
The Sociology of Science edited by Norman W Storer, published 1973  
[http://www.collier.sts.vt.edu/5424/pdfs/merton\\_1973.pdf](http://www.collier.sts.vt.edu/5424/pdfs/merton_1973.pdf)



# Visionary - and it still holds

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- The four Mertonian norms of science (1942)
  - **universalism**: scientific validity is independent of the sociopolitical status/personal attributes of its participants
  - **communalism**: all scientists should have common ownership of scientific goods (intellectual property), to promote collective collaboration; secrecy is the opposite of this norm.
  - **disinterestedness**: scientific institutions act for the benefit of a common scientific enterprise, rather than for the personal gain of individuals within them
  - **organized scepticism**: scientific claims should be exposed to critical scrutiny before being accepted: both in methodology and institutional codes of conduct.



# Something is wrong

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## Your right arm for a publication in AER?

Arthur Attema and Werner Brouwer and J van Exel

Erasmus University Rotterdam, Erasmus University Rotterdam,  
Erasmus University Rotterdam

31. January 2012

**ABSTRACT.** The time tradeoff (TTO) method is popular in medical decision making for valuing health states. We use it to elicit economists' preferences for publishing in top economic journals and living without limbs. The economists value the journals highly, and have a clear preference between them, with *American Economic Review* (AER) the most preferred. Their responses imply they would sacrifice more than half a thumb for publishing in AER. The TTO results are consistent with ranking and willingness to pay results, and indicate that preferences for journals are neither guided by influence factors, nor by expectations of a resulting salary rise.



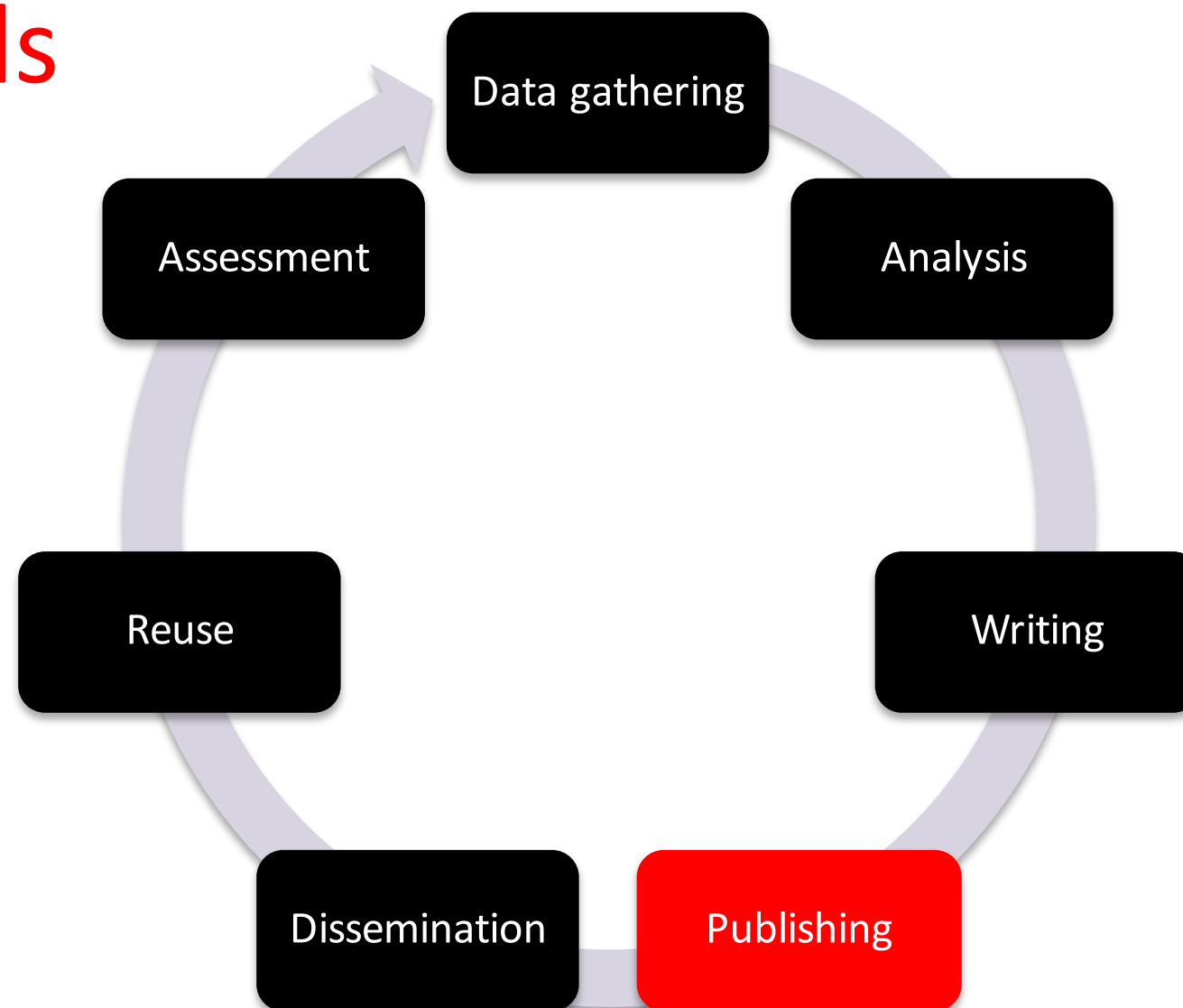
[https://mpra.ub.uni-muenchen.de/36801/1/MPRA\\_paper\\_36801.pdf](https://mpra.ub.uni-muenchen.de/36801/1/MPRA_paper_36801.pdf)



# How did we get here?

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- The only thing that counts in academia is publication of **novel** results in **high impact journals**



# The reward system is a problem

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Image: Flickr [Jason Taellious](#) reward – CC-BY-SA 2.0

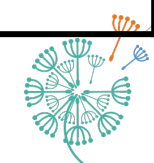


# Problem - reluctance to share data

My data contains personal/sensitive information	My data is too complicated	People may misinterpret my data	My data is not very interesting
Commercial funder doesn't want to share it	We might want to use it in another paper	People will contact me to ask about stuff	Data Protection/ National Security
It's too big	People will see that my data is bad	I want to patent my discovery	It's not a priority and I'm busy
I don't know how	I'm not sure I own the data	Someone might steal/ plagiarise it	My funder doesn't require it



Data Excuse Bingo created by @jenny\_molloy



**OSC**  
Office of Scholarly Communication

# Problem: Hyperauthorship

24 of the 33 pages of this paper listed the over 5,000 authors (nine pages are the paper itself)

The screenshot shows the APS Physics website interface. At the top, there's a navigation bar with the APS physics logo, links for Journals, Help/Feedback, a search bar with the placeholder 'Journal, vol, page, DOI, etc.', and a Log in button. Below this is a dark green header with the text 'PHYSICAL REVIEW LETTERS' and a secondary navigation bar with links: Highlights, Recent, Accepted, Collections, Authors, Referees, Search, Press, About, and a RSS icon. The main content area features a white box with the article title 'Combined Measurement of the Higgs Boson Mass in  $pp$  Collisions at  $\sqrt{s} = 7$  and 8 TeV with the ATLAS and CMS Experiments'. Above the title are three tags: 'Featured in Physics', 'Editors' Suggestion', and 'Open Access'. Below the title, the authors are listed as 'G. Aad *et al.* (ATLAS Collaboration, CMS Collaboration)' and the publication details are 'Phys. Rev. Lett. **114**, 191803 – Published 14 May 2015'. A 'PhysICS' logo is followed by a link to 'See Viewpoint: A More Precise Higgs Boson Mass'. To the right of the article title is a circular badge with the number '579' and a rainbow-colored border. Below the badge are social media sharing icons for Twitter, Facebook, and a 'More' button. At the bottom of the article box, there are tabs for 'Article', 'References', and 'Citing Articles (110)', along with buttons for 'PDF', 'HTML', and 'Export Citation'. The page is flanked by large grey arrows pointing left and right, and a 'Issue' label is visible at the bottom right.



<http://journals.aps.org/prl/abstract/10.1103/PhysRevLett.114.191803>

# Problem: Reproducibility

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Scientists are very rarely rewarded for being right, they are rewarded for publishing in certain journals and for getting grants.



Image by Danny Kingsley



# Problem: 'Gaming'

## Retraction Watch

20 April 2017

Tracking retractions as a

### A new record: Major publisher retracting more than 100 studies from cancer journal over fake peer reviews

with 17 comments

Springer is [retracting 107 papers](#) from one journal after discovering they had been accepted with fake peer reviews. Yes, 107.

To submit a fake review, someone (often the author of a paper) either makes up an outside expert to review the paper, or suggests a real researcher — and in both cases, provides a fake email address that comes back to someone who will invariably give the paper a glowing review. In this case, Springer, the publisher of *Tumor Biology* through 2016, told us that an investigation produced “clear evidence” the reviews were submitted under the names of real researchers with faked emails. Some of the authors may have used a third-party editing service, which may have supplied the reviews. The [journal is now published by SAGE](#).



The retractions follow another sweep by the publisher last year, when *Tumor Biology* [retracted 25 papers](#) for compromised review and other issues, mostly authored by researchers based in Iran. With the latest bunch of retractions, the journal has now retracted the most papers of any other journal indexed by Clarivate Analytics' Web of Science, formerly part of Thomson Reuters. In 2015, its impact factor

<http://retractionwatch.com/2017/04/20/new-record-major-publisher-retracting-100-studies-cancer-journal-fake-peer-reviews/>



# Problem: Poor science

Downloaded from <http://rsos.royalsocietypublishing.org/> on November 7, 2016

ROYAL SOCIETY  
OPEN SCIENCE

[rsos.royalsocietypublishing.org](http://rsos.royalsocietypublishing.org)

Research



**Cite this article:** Smaldino PE, McElreath R.  
2016 The natural selection of bad science.  
*R. Soc. open sci.* **3**: 160384.  
<http://dx.doi.org/10.1098/rsos.160384>

Received: 1 June 2016

Accepted: 17 August 2016

**Subject Category:**

Psychology and cognitive neuroscience

**Subject Areas:**

theoretical biology/computer modelling  
and simulation/statistics

## The natural selection of bad science

Paul E. Smaldino<sup>1</sup> and Richard McElreath<sup>2</sup>

<sup>1</sup>Cognitive and Information Sciences, University of California, Merced, CA 95343, USA

<sup>2</sup>Department of Human Behavior, Ecology, and Culture, Max Planck Institute for  
Evolutionary Anthropology, Leipzig, Germany

PES, 0000-0002-7133-5620; RME, 0000-0002-0387-5377

Poor research design and data analysis encourage false-positive findings. Such poor methods persist despite perennial calls for improvement, suggesting that they result from something more than just misunderstanding. The persistence of poor methods results partly from incentives that favour them, leading to the natural selection of bad science. This dynamic requires no conscious strategizing—no deliberate cheating nor loafing—by scientists, only that publication is a principal factor for career advancement. Some normative methods of analysis have almost certainly been selected to further publication instead of discovery. In order to improve the culture of science, a shift must be made away from correcting misunderstandings and towards rewarding understanding. We support this argument with empirical evidence and computational modelling. We first present a 60-year meta-analysis of statistical power in the behavioural sciences and show that power has not improved despite repeated demonstrations of the necessity of increasing power. To demonstrate the logical consequences of structural



<http://rsos.royalsocietypublishing.org/content/royopensci/3/9/160384.full.pdf>



# Problem: Risk averse research

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- Scientists we interview routinely say that they **dare not propose bold projects** for funding in part because of expectations that they will produce a steady stream of papers in journals with high impact scores.
- Our analysis of 15 years' worth of citation data suggests that common bibliometric measures relying on short-term windows **undervalue risky research**
  - Reviewers are blinkered by bibliometrics: Nature News & Comment. 26 April 2017
  - <http://www.nature.com/news/reviewers-are-blinkered-by-bibliometrics-1.21877>
- Research today is driven by last year's publications.
- **Scientists write to influence reviewers and editors in the process.** ... They use strategic citation practices.
- The **greater the novelty of the work the greater likelihood it is to have a negative review** ... Scientists understand the novelty bias so they downplay the new elements to the old elements.
  - Professor James Evans, 2015 Researcher to Reader conference
  - <https://unlockingresearch.blog.lib.cam.ac.uk/?p=539>

# Problem: Attrition crisis?

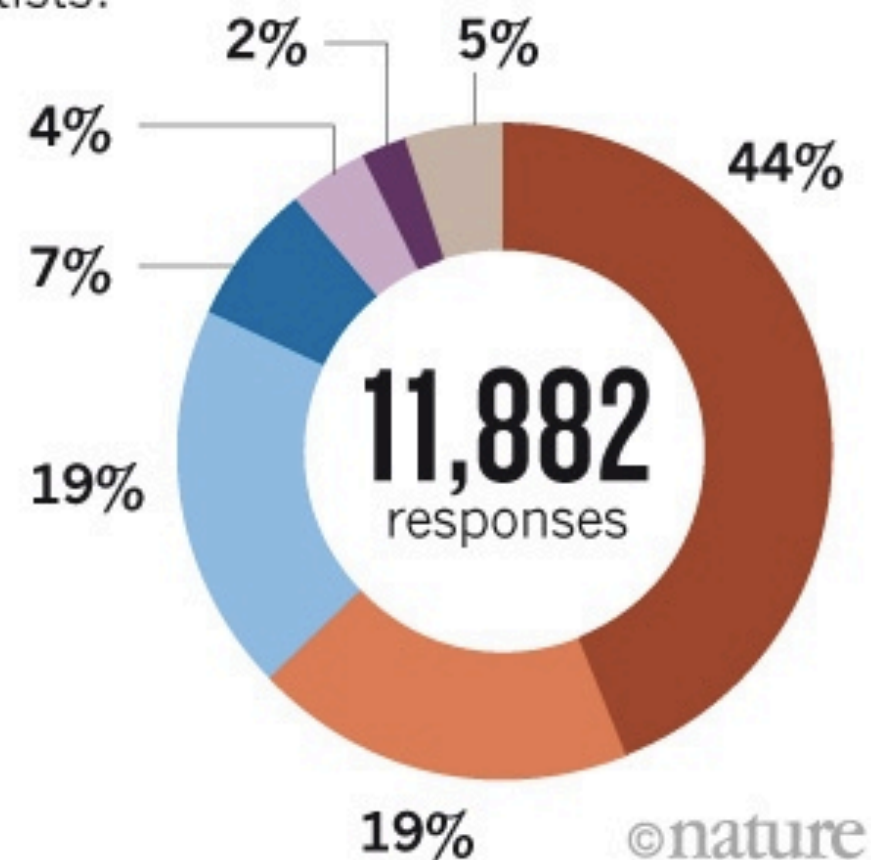
## FIGHT FOR FUNDING

The biggest challenge facing early-career scientists is the struggle to get grants, *Nature's* readers say.

### Poll question:

What do you think is the biggest challenge facing early-career scientists?

- The fight for funding
- Lack of work-life balance
- Progression judged too heavily on publication record
- Admin and bureaucracy
- Lack of clear targets
- Discrimination
- Other



Hard work, little reward: Nature readers reveal working hours and research challenges, Nature News, 4 November 2016, <http://www.nature.com/news/hard-work-little-reward-nature-readers-reveal-working-hours-and-research-challenges-1.20933>

# To recap...

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- Reluctance to share data
- Hyperauthorship
- Reproducibility
- Poor science
- Risk adverse research
- Gaming peer review
- Attrition of research talent pool

# Perverse incentives?

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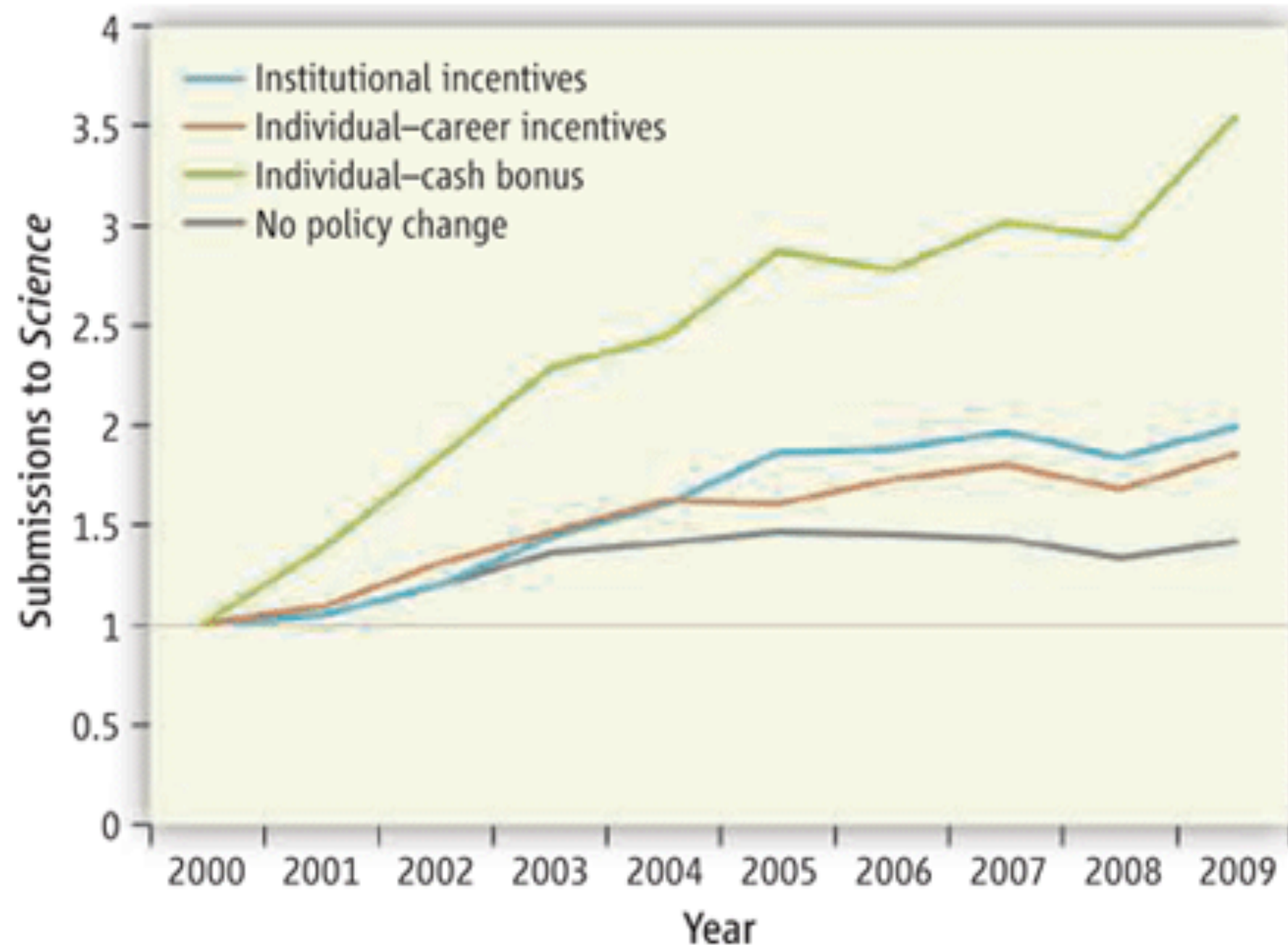


Image: John Liu CC BY 2.0 via Wikimedia Commons





# Money talks



Franzoni C(1), Scellato G, Stephan P., Science policy. Changing incentives to publish. Science. 2011 Aug 5;333(6043):702-3. doi: 10.1126/science.1197286

# India

- Cash award for publishing papers
  - To further promote research, the institute has started a program to award cash of Rs 10,000 to any full time student researcher of IITK who publishes a paper in a journal listed by the ISI Web of Science. In the case of more than one author, the prize money shall be shared by all the authors. A maximum of two awards are given during a degree course. This initiative was started in April 2000
    - <https://www.iitk.ac.in/dora/cash-award-for-publishing-papers>
- Faculty Award Incentive for Research Publication (FAIR Publication)
  - Started 1 January 2017
    - <https://manipal.edu/mu/directorate-of-research/policies/incentive-policy/fair-publication-faculty-award-incentive-for-research-publicatio.html> [NOTE: This url appears no longer active]

## V. Maximum Cash Incentive:

a. Original research articles, review articles and full length conference papers (published in Scopus/ Web of Science indexed journals only) qualify for the maximum award incentive as per the cap provided:

Journal Impact Factor	First Author (a)	Corresponding Author (b)	Faculty Co Authors (c)	Student Co Authors*(d)	Top 10% journals by SNIP/SJR**	Maximum Cash Incentive (Per paper)
Less than 0.1	3000	3000	1500	1500	1500	10500
More than 0.1 up to 1	6000	6000	3000	3000	3000	21000
More than 1 & up to 5	12000	12000	6000	6000	6000	42000
More than 5 & up to 10	18000	18000	9000	9000	9000	63000
More than 10 & up to 20	24000	24000	12000	12000	12000	84000
More than 20	36000	36000	18000	18000	18000	126000

10,000 rupee = USD 156  
126,000 rupee = USD 1964



# Pakistan

- Office of Research Innovation and Commercialisation. Promotion Of Research Award
  - “Any Researcher who publishes a full length research article in either “Science” or “Nature” will be awarded a cash prize of 0.5 million. In addition, a full length research publication that appears in journals having equal or higher impact factor than the lowest impact factor of either of these two journals ( ‘Sciences” or “ Nature”), will also be considered for the award.”
    - <http://ww3.comsats.edu.pk/ORIC/IFAwards.aspx>
- Research Publications Policy ( 19 January 2016)
  - “Revised Cash Awards Policy for Publication of Research Papers / Books For Faculty & Students”
    - <https://www.bahria.edu.pk/cash-award-policy-on-research-publications/>

## Policy Statement:

Cash Award will be given to the research publication in the following categories:

- |  |          |
|--|----------|
| 1. ISI Indexed with Impact Factor Journal Publication      | 50,000/- |
| 2. ISI Indexed without Impact Factor Journal Publication   | 25,000/- |
| 3. Book Publication (subject to the verification from HEC) | 25,000/- |
| 4. HEC Recognized local/Pakistani Journal                  | 10,000/- |

0.5 million Pakistan rupee = USD 4746  
50,000 Pakistan rupee = USD 475

# Malaysia

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- Terms and conditions for payment of incentives for publications indexed in ISI-Web-Of-Science (WoS) (2014-2016)
  - Incentives for publications indexed in ISI-Web-of-Science will be made based on the previous year's JCR. For example JCR 2013 will be referred for publications in year 2014.
  - [https://umexpert.um.edu.my/file/notice/TERMS\\_AND\\_CONDITIONS\\_FOR\\_PAYMENT\\_OF\\_INCENTIVES\\_2014-2016.pdf](https://umexpert.um.edu.my/file/notice/TERMS_AND_CONDITIONS_FOR_PAYMENT_OF_INCENTIVES_2014-2016.pdf)



# Philippines

## Categories of the Awards

Type of Publication	Cash Incentive
1. Peer-reviewed <sup>1</sup> research paper or literary/creative work (short story, creative non-fiction or essay, play, or poetry <sup>2</sup> ) published in a journal indexed in the Institute for Scientific Information (ISI) and/or Scopus <sup>3</sup>	PhP 50,000.00
2. Peer-reviewed book <sup>4</sup> , including literary/creative single-author novel or anthology (short stories, creative non-fiction or essays, plays, or poetry), published by a reputable international publisher	PhP 50,000.00
3. Peer-reviewed book, including literary/creative single-author novel or anthology (short stories, creative non-fiction or essays, plays, or poetry), published by a reputable national publisher	PhP 30,000.00
4. Peer-reviewed research paper or literary/creative work appearing in an international <sup>5</sup> journal, monograph, or anthology, or as a chapter in a book	PhP 20,000.00
5. Peer-reviewed research paper or literary/creative work appearing in a national journal, monograph, or anthology, or as a chapter in a book	PhP 10,000.00

## • Research Incentive Scheme

- <http://www.ifsu.edu.ph/wp-content/uploads/2016/04/PG69s2015-Research-Incentive-Scheme.pdf>

incentives depending on circulation level categorized as follows:

Categories	Cash Incentives (PhP)			
	ISI/Scopus Indexed Journal	CHED-Recognized Journal	Other Refereed Journals with Impact Factor (IF)	
			With IF of 3.5 & Above	With IF of less than 3.5
E-journals/ books with national/international circulation	30,000.00	20,000.00	10,000.00	5,000.00
Printed journals/ books/ regular	20,000.00	10,000.00	5,000.00 regardless of Impact Factor	

1

- [http://www.xu.edu.ph/images/offices/research\\_and\\_social\\_outreach/tripod\\_units/xu\\_pres/docs/guidelines\\_pubawards.pdf](http://www.xu.edu.ph/images/offices/research_and_social_outreach/tripod_units/xu_pres/docs/guidelines_pubawards.pdf)

magazines with national/international circulation			
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Notes:

50,000 Philippines peso = 974 USD

# Qatar - and a plaque!

## Type 1- General Paper Reward:

The papers published in journals which are *listed in Web of science (WoS) or Science Citation Index (SCI)/SCI-Expanded or Social Sciences Citation Index (SSCI) or Scopus database* are rewarded according to the following table. Impact factor is calculated according to Thomson Reuters (ISI). The maximum value for this reward is QR 15,000.

No	Journals Impact Factor	Rewards (QR)
1	Indexed papers in journals with no impact factor or with Impact Factor of 0.1-0.99	3000*
2	Articles in journals with Impact Factor of 1.0	4000

**\*This is flat reward per paper applied only in the case of Humanities, Islamic Studies, and Social Sciences. Only publications in the approved College's Journal list will be considered**

## Type 2 - Publication in Nature or Science Journal:

Award for publication in *Nature Journal or Science journal*. The value of this reward is QR 50,000 in addition to a plaque recognizing the efforts.

4,000 Qatari riyal = 1078 USD  
50,000 Qatari riyal = 13,477 USD



[http://www.qu.edu.qa/offices/research/academic/research\\_reward.php](http://www.qu.edu.qa/offices/research/academic/research_reward.php)



# Is there a common theme here?

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CURRENCY EXCHANGE © IMAGES MONEY (CC BY 2.0) VIA FLICKR

# Let's remind ourselves of Merton

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- **disinterestedness:** scientific institutions act for the benefit of a common scientific enterprise, rather than for the personal gain of individuals within them
- Hmm....
- So what is driving this?



# India

- Cash award for publishing papers
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- Faculty Award Incentive for Research Publication (FAIR Publication)
  - Started 1 January 2017
    - <https://manipal.edu/mu/directorate-of-research/policies/incentive-policy/fair-publication-faculty-award-incentive-for-research-publicatio.html>

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3. Peer-reviewed book, including literary/creative single-author novel or anthology (short stories, creative non-fiction or essays, plays, or poetry), published by a reputable national publisher	PhP 30,000.00
4. Peer-reviewed research paper or literary/creative work appearing in an international <sup>5</sup> journal, monograph, or anthology, or as a chapter in a book	PhP 20,000.00
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1

- [http://www.xu.edu.ph/images/offices/research\\_and\\_social\\_outreach/tripod\\_units/xu\\_press/docs/guidelines\\_pubawards.pdf](http://www.xu.edu.ph/images/offices/research_and_social_outreach/tripod_units/xu_press/docs/guidelines_pubawards.pdf)

magazines with national/ international circulation			
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Notes:



# Qatar – and a plaque!

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[http://www.qu.edu.qa/offices/research/academic/research\\_reward.php](http://www.qu.edu.qa/offices/research/academic/research_reward.php)

# Bloody impact factors

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Jiménez-Contreras E, Delgado López-Cózar E, Ruiz-Pérez R, Fernández VM., **Impact-factor rewards affect Spanish research**. *Nature*. 2002 Feb 14;415(6873):726-9. doi: 10.1038/417898b

Huggett S, Impact factors: Cash puts publishing ethics at risk in China, *Nature*. 2012 Oct 18;490(7420):342. doi: 10.1038/490342c.

The number of scientific papers published in China in recent years has increased exponentially (see [go.nature.com/8fjhdt](http://go.nature.com/8fjhdt)). There are concerns that these numbers are being **inflated by a payment scheme offered by some Chinese institutions to boost publication in journals with high impact factors** (J. Shao and H. Shen *Learned Publ.* 24, 95–97; 2011 <http://dx.doi.org/10.1087/20110203> ).



# But measuring JIF is easy!

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Image: Flickr [Peter](#) I Can't See You... ... so you can't see me! CC-BY-SA





# Agreed – metrics are problematic

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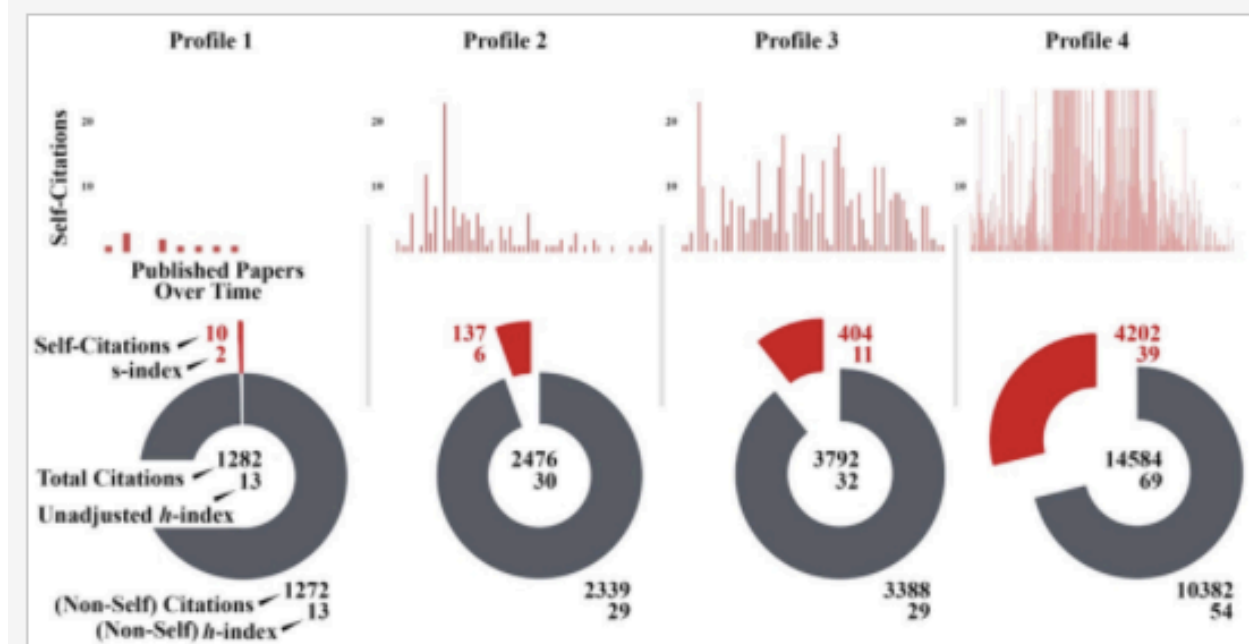
- Scepticism across sector about broader use of metrics in research assessment and management.
- Peer review is supported for evaluating research outputs, proposals and individuals.
- Carefully selected indicators can complement decision-making, but a 'variable geometry' of expert judgement, quantitative indicators and qualitative measures that respect research diversity will be required.
- Concern that some indicators can be misused or 'gamed': eg: JIF, university rankings and citation counts
- Metrics are not well connected or interoperable
  - <http://www.hefce.ac.uk/pubs/rereports/year/2015/metrictide/>

# Another index?

The screenshot shows the MDPI article page for the article "Improving the Measurement of Scientific Success by Reporting a Self-Citation Index" by Justin W. Flatt, Alessandro Blasimme, and Effy Vayena. The page includes a search bar, article metadata (Volume 5, Issue 3), and a sidebar with article versions and related information. The main content area displays the article title, authors, affiliations, and a brief abstract.

A self-citation index (referred to here as an *s*-index) calculated similar to the *h*-index provides details regarding the proportion and placement of self-citations from the total number of citations that a scientist has received over the course of his or her career.

**Figure 1. Transparency in citation reporting.** Self-citation data (red) is shown for four biomedical researchers based on their papers in PubMed. The top row is a manuscript level view of how each individual cites themselves over time. Each red bar represents a single paper that has been self-cited to some degree. Note that the cutoff for clarity here is just beyond 20 citations. It was chosen to provide a sense of how each researcher distributes self-citations over his or her published papers. The bottom row reveals the proportion of total citations that are self-cites.



# Speaking of other ways of measuring...

This Altmetrics score of 579 is “in the top 5% of all research outputs scored by Altmetric”

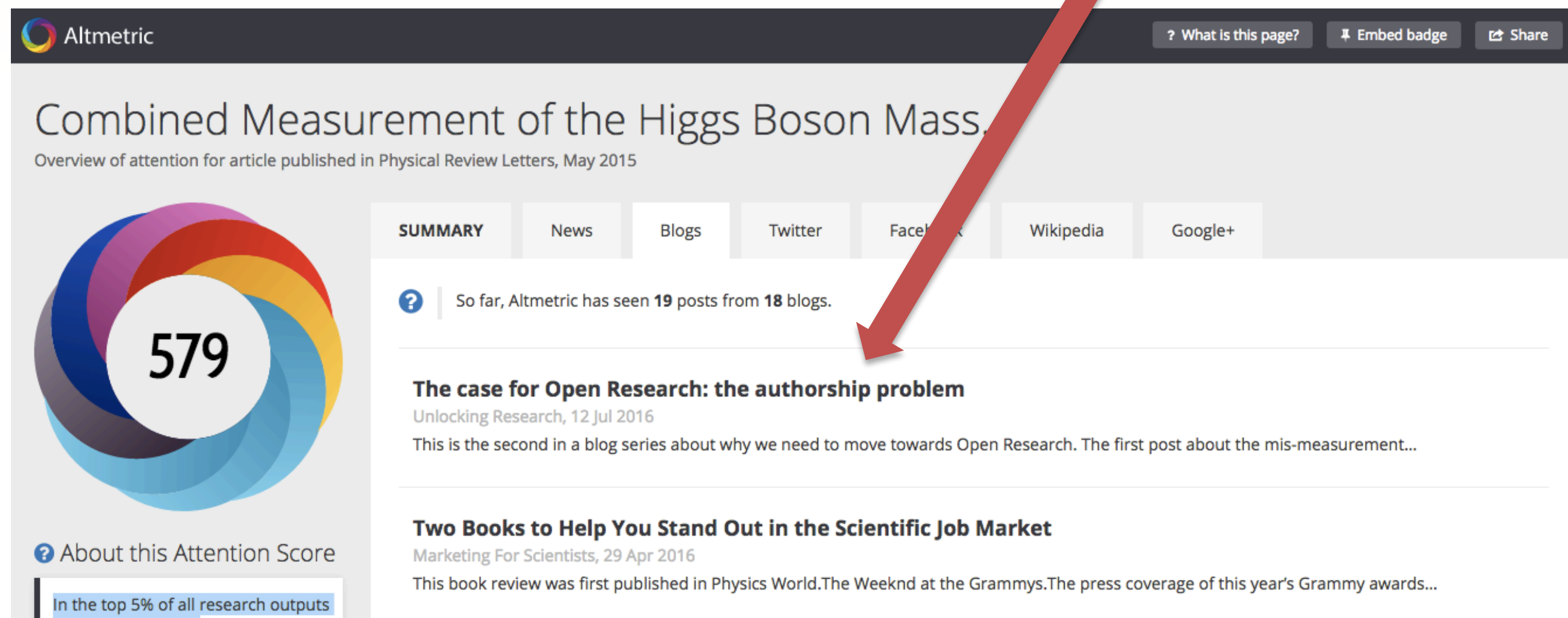
The screenshot shows the article page for "Combined Measurement of the Higgs Boson Mass in  $pp$  Collisions at  $\sqrt{s} = 7$  and 8 TeV with the ATLAS and CMS Experiments" by G. Aad *et al.* (ATLAS Collaboration, CMS Collaboration). The article is published in Phys. Rev. Lett. **114**, 191803 – Published 14 May 2015. The page features a green header with the APS physics logo and navigation links. A red arrow points from the text above to a red circle highlighting the Altmetrics score of 579, which is displayed as a colorful circular icon with the number 579 inside. Below the score are social media sharing icons for Twitter, Facebook, and a 'More' button. The article title and author information are prominently displayed in the center. At the bottom, there are tabs for 'Article', 'References', and 'Citing Articles (110)', along with buttons for 'PDF', 'HTML', and 'Export Citation'.



<http://journals.aps.org/prl/abstract/10.1103/PhysRevLett.114.191803>



# Blogged because of author list!



<https://aps.altmetric.com/details/3997327/blogs>

# Solution – Open Research

Image: Flickr [Andy Bed of Nails](#) CC-BY-NC-ND



Distribute dissemination across the research lifecycle and reward it





# Disciplinary specific

Biomedical researchers	actively practice open research
Clinical researchers	practising open research
Population and public health researchers	experience challenges in data sharing that need addressing
Humanities researchers	have very little experience of data sharing and seemingly not much could motivate them to share their data
Social science researchers	little experience of data sharing and reuse and perceive minimal benefits from data sharing

Van den Eynden, Veerle et al. (2016) *Towards Open Research: practices, experiences, barriers and opportunities*. Wellcome Trust.

<https://dx.doi.org/10.6084/m9.figshare.4055448>



# If you are interested....

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- Blog series - *The Case for Open Research*
  - July & August 2016
  - [https://unlockingresearch.blog.lib.cam.ac.uk/?page\\_id=2#OpenResearch](https://unlockingresearch.blog.lib.cam.ac.uk/?page_id=2#OpenResearch)
- Keynote – *Is Open Science a solution or a threat?*
  - Urfist de Bordeaux, France, 4 April 2017
  - <https://www.slideshare.net/DannyKingsley/is-open-science-a-solution-or-a-threat>
- Keynote – *Reward, reproducibility and recognition in research - the case for going Open*
  - Tromsø, 21 November 2016
  - SLIDES - <https://www.slideshare.net/DannyKingsley/reward-reproducibility-and-recognition-in-research-the-case-forgoing-open>
  - VIDEO – <http://septentrio.uit.no/index.php/SCS/article/view/4036>





# It's OK – things are looking up

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Image: Flickr fotologic Don't Panic CC-BY





# Governments are invested

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Image: Flickr [Dan Forest](#) Westminster CC-BY-NC



# UK Government

- UK Research Integrity Enquiry
  - UK Government Science and Technology Committee
  - Submissions closed 10 March 2017
  - Project abandoned after UK election

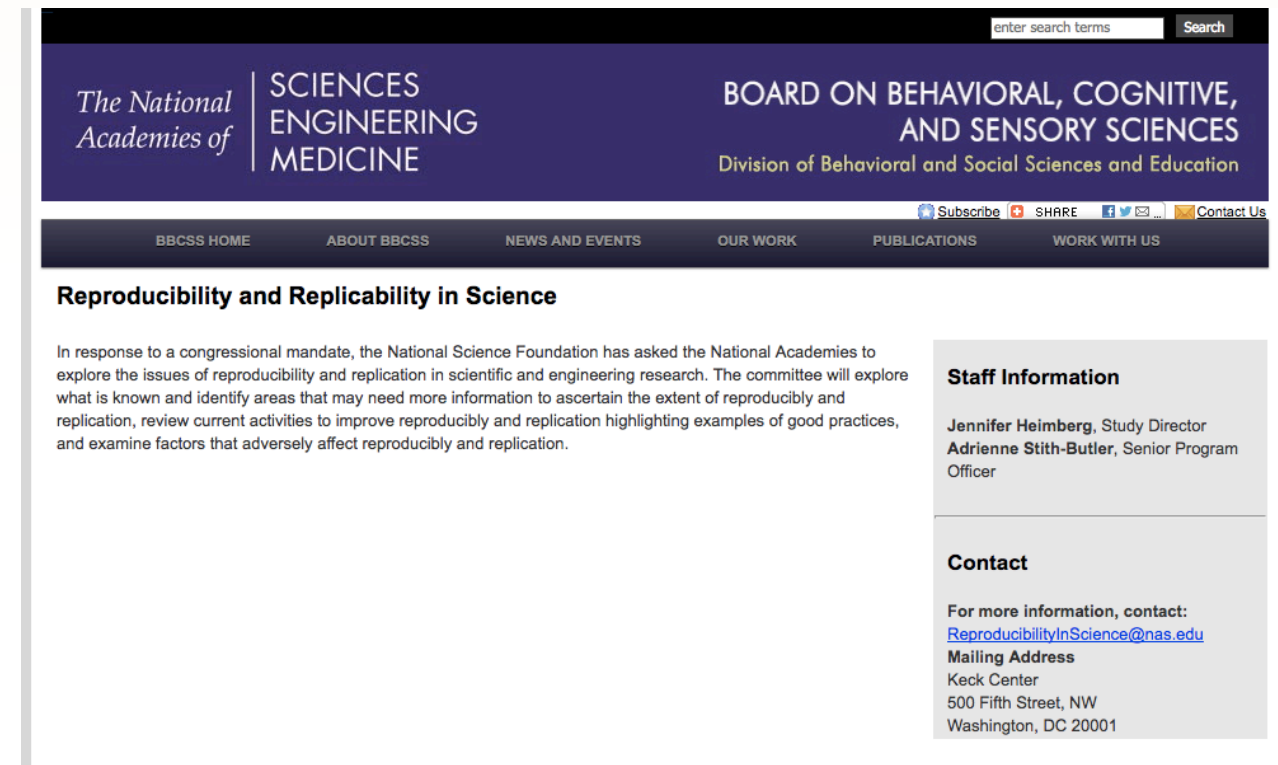


The screenshot shows the website [www.parliament.uk](http://www.parliament.uk) with the Science and Technology Committee (Commons) Research integrity inquiry page. The page header includes links for Accessibility, Cookies, Email alerts, RSS feeds, and Contact us. The main navigation bar lists Home, Parliamentary business, MPs, Lords & offices, About Parliament, Get involved, Visit, and Education. The breadcrumb trail indicates the path: You are here: Parliament home page > Parliamentary business > Committees > All committees A-Z > Commons Select > Science and Technology Committee (Commons) > Inquiries > Parliament 2015 > Research integrity. The left sidebar contains a list of committees and inquiries, with 'Research Integrity' highlighted. The main content area is titled 'Science and Technology Committee (Commons)' and 'Research integrity inquiry'. It states that the inquiry status is 'Concluded' and provides a notice about the general election on 8 June 2017. The 'Scope of the inquiry' section describes the committee's inquiry on the issues raised in the POSTnote (PDF 431 KB) and the 2011 report (PDF 2.64 MB). It also mentions the previous Science and Technology Committee report on 'Peer review in scientific publications' (PDF 2.64 MB) and the establishment of a 'Research Integrity Concordat'. The page includes a small image of laboratory glassware and a link to the 'Terms of reference: Research integrity'.

<https://www.parliament.uk/business/committees/committees-a-z/commons-select/science-and-technology-committee/inquiries/parliament-2015/inquiry6/>

# Early days in US

- Committee on Reproducibility and Replicability in Science with the National Academies of Science
- Nominations closed 25 August



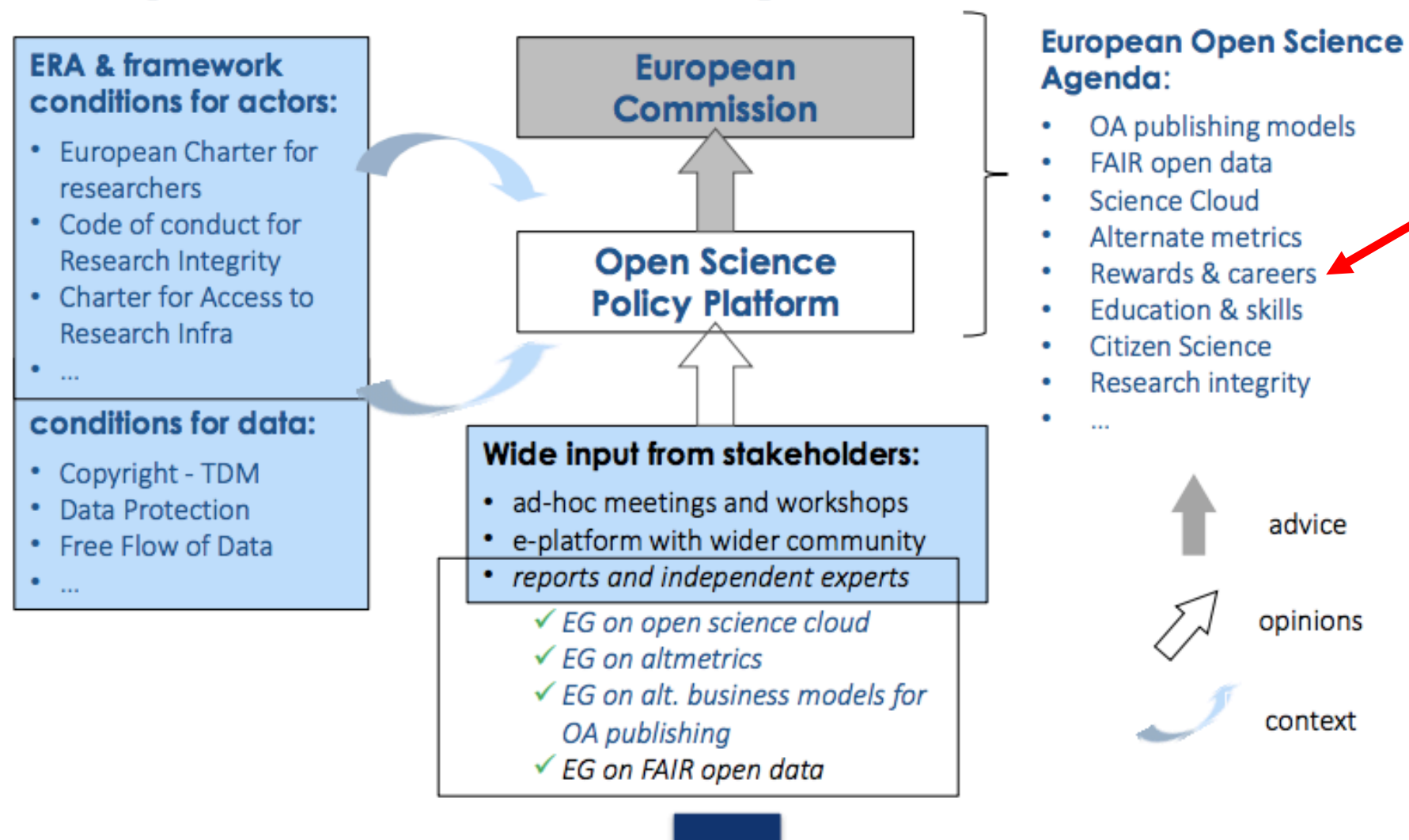
[http://sites.nationalacademies.org/dbasse/bbcss/reproducibility\\_and\\_replicability\\_in\\_science/index.htm](http://sites.nationalacademies.org/dbasse/bbcss/reproducibility_and_replicability_in_science/index.htm)



# European Commission



## Open Science Policy Platform





# Funders hold a lot of power

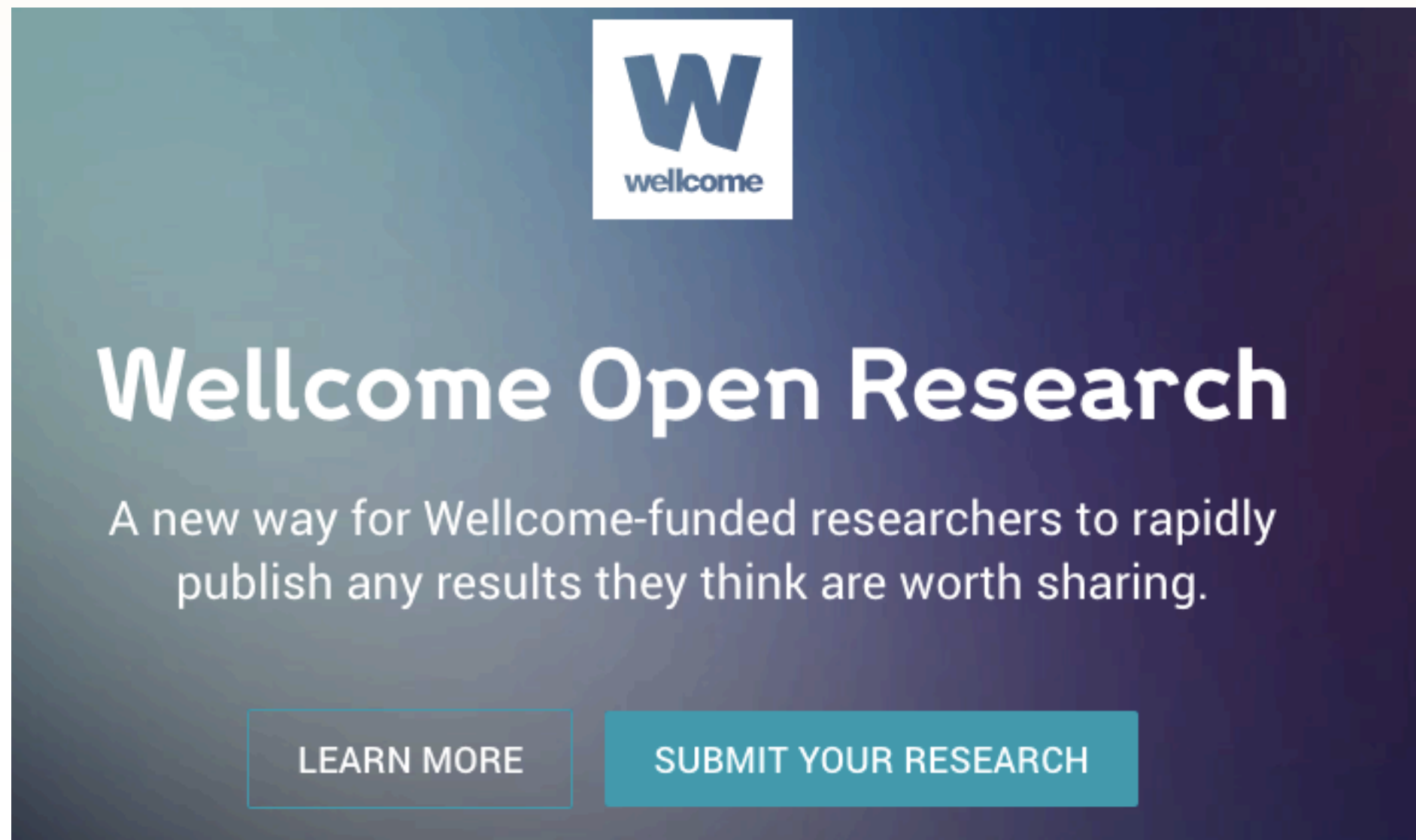
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Image: Flickr [Hamza Butt](#) money, CC-BY 2.0

# New publishing options- 6 July 2016

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Can publish data sets, case reports, protocols, null & negative results [wellcomeopenresearch.org/](https://wellcomeopenresearch.org/)





# New publishing options – 23 March 2017



PROFESSIONAL JOBS SUMMITS RANKINGS STUDI

## Gates Foundation joins shift towards open access platforms

Initiative will emulate Wellcome Trust's publishing model, with European Commission set to follow



<https://www.timeshighereducation.com/news/gates-foundation-joins-shift-towards-open-access-platforms>

# Broader outputs – 10 Jan 2017

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- Wellcome Trust - UK
- “We now accept preprints in grant applications”
  - As of January 2017, we will permit researchers to **cite preprints**, or pre-peer reviewed manuscripts, in their grant applications and end-of-grant review reports.
  - <https://wellcome.ac.uk/news/we-now-accept-preprints-grant-applications>

# Broader outputs – 24 March 2017

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- The National Institutes of Health - US
- The NIH encourages investigators to use interim research products, such as **preprints**, to speed the dissemination and enhance the rigor of their work. This notice clarifies reporting instructions to allow investigators **to cite their interim research products** and claim them as products of NIH funding.
  - Preprints
  - Preregistered protocols etc
  - <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-17-050.html>





# Broader outputs – 1 April 2017

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- Medical Research Council - UK
- The MRC are now also actively encouraging researchers to share their pre-peer reviewed manuscripts via established preprint servers.
  - To this end, we are allowing researchers to **cite preprints** in their grant and fellowship applications. This has applied to applications received from 1 April 2017.
  - <https://www.mrc.ac.uk/research/policies-and-guidance-for-researchers/preprints/>

# Broader outputs – 24 July 2017

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- Wellcome Trust – UK
- ‘Outputs Management and Sharing Policy’
  - We recognise that in addition to data outputs, many of our funded researchers generate **original software** and research materials, such as **antibodies, cell lines or reagents**. These are of significant value to other researchers and are crucial to anyone seeking to validate or replicate the research.
  - You should take reasonable steps to ensure that your outputs are **discoverable** to potential users, are deposited in **recognised community repositories** wherever these exist, and have **persistent identifiers**, such as DOIs, to enable their use to be **cited and tracked**.
  - <https://wellcome.ac.uk/news/our-new-policy-sharing-research-data-what-it-means-you>



# All the rage

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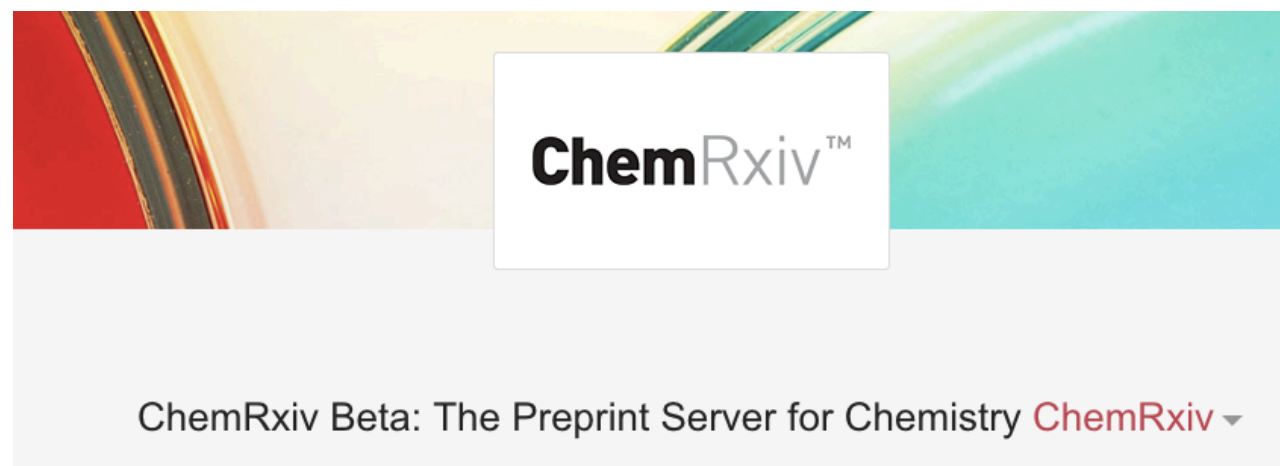
arXiv.org

*PeerJ Preprints -  
rapid communication  
& early findings*

**SOCARXIV**  
open archive of the social sciences



**bioRxiv**  
beta  
THE PREPRINT SERVER FOR BIOLOGY



preprints





# But wait, there's more



## The Center for Open Science, Alternative to Elsevier, Announces New Preprint Services Today

August 29, 2017

*Roger C. Schonfeld*

The past year has been a momentous period for preprint-driven open access. Elsevier has made two major acquisitions, of [SSRN with its edited research networks](#) and of [bepress with its Digital Commons institutional repository service](#). Springer Nature sibling Digital Science has worked to develop its presence too, expanding [figshare as not just a data repository but as a full institutional solution](#) and more recently improving its support for preprints. As commercial providers buy and build their way into the institutional repository and preprint marketplace, the not-for-profit Center for Open Science (COS) is offering an alternative by expanding what it calls the preprint services it powers through its platform. Today, [COS announced the availability of six new services](#), including a national repository for Indonesia and a variety of new disciplinary

<http://www.sr.ithaka.org/blog/the-center-for-open-science-alternative-to-elsevier-announces-new-preprint-services-today/>

The new COS services are:

- [INA-Rxiv](#), a national preprint server of Indonesia
- [LISSA](#), an open scholarly platform for library and information science
- [MindRxiv](#), a service for research on mind and contemplative practices
- [NutriXiv](#), a preprint service for the nutritional sciences
- [paleorXiv](#), a digital archive for Paleontology
- [SportRxiv](#), an open archive for sport and exercise-related research

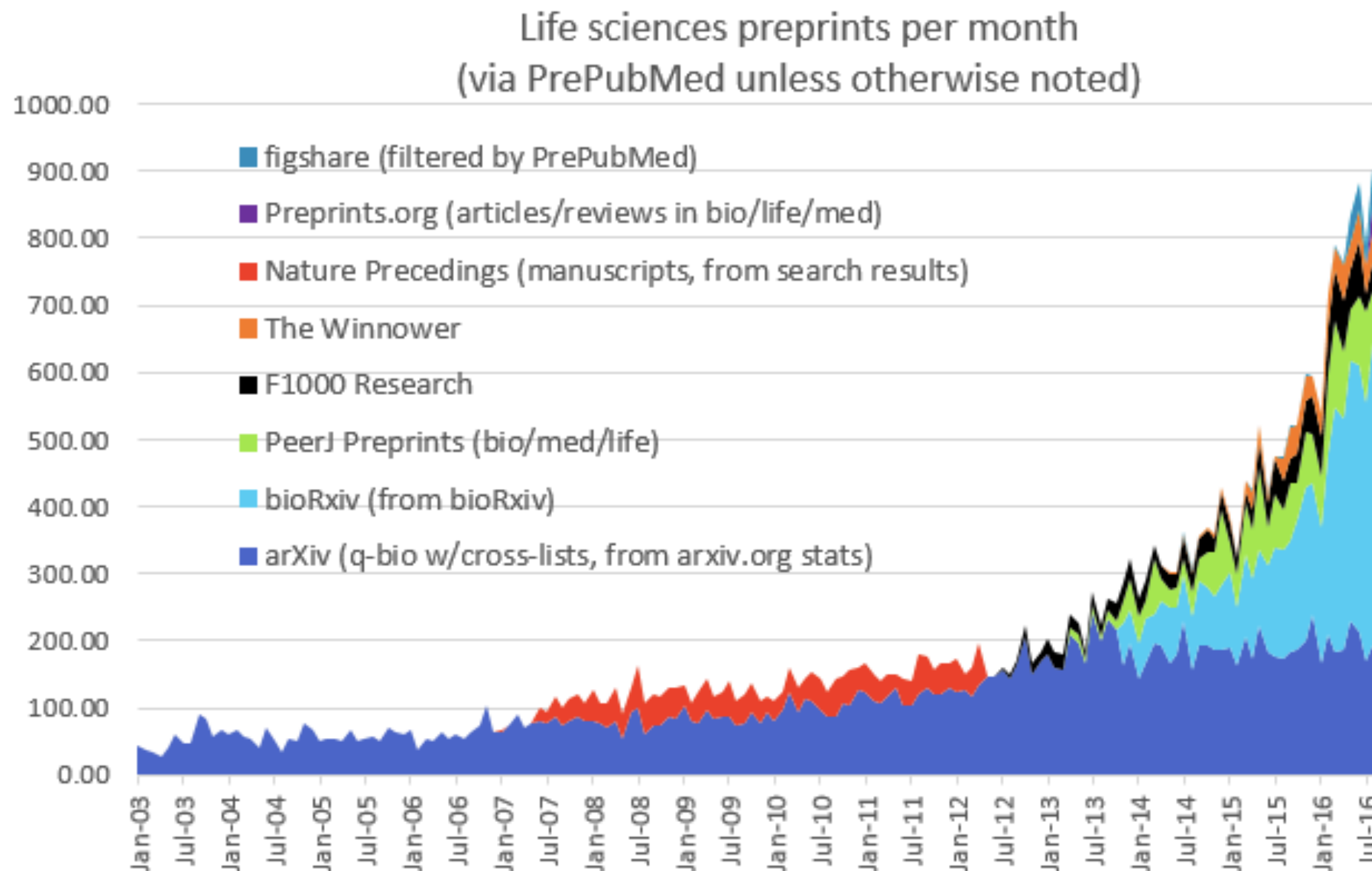
They complement this list of already existing servers:

- [AgriXiv](#) (agriculture)
- [BITSS](#) (research methodology)
- [engrXiv](#) (Engineering)
- [LawArXiv](#) (law)
- [PsyArXiv](#) (psychology)
- [SocArXiv](#) (social sciences)
- [Thesis Commons](#) (theses and dissertations)
- [OSF Preprints](#) (any discipline)

The Center for Open Science announces six new Preprint Servers, 30 Aug 2017  
<https://www.scinoptica.com/2017/08/the-center-for-open-science-announces-six-new-preprint-servers/>



# Dramatic growth



Version 1 | [asapbio.org](http://asapbio.org)



<http://asapbio.org/preprint-info/biology-preprints-over-time>

# Broader outputs – 28 July 2016

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## Concordat on Open Research Data

The Concordat on Open Research Data has been developed by a UK multi-stakeholder group. This concordat will help to ensure that the research data gathered and generated by members of the UK research community is made openly available for use by others wherever possible in a manner consistent with relevant legal, ethical, disciplinary and regulatory frameworks and norms, and with due regard to the costs involved.



<http://www.rcuk.ac.uk/documents/documents/concordatonopenresearchdata-pdf/>





# Community created

F<sub>indable</sub> A<sub>ccessible</sub> I<sub>nteroperable</sub> R<sub>eusable</sub>



The FAIR Data Principles

<https://www.force11.org/group/fairgroup/fairprinciples>

The FAIR Guiding Principles for scientific data management and stewardship

<https://www.nature.com/articles/sdata201618>



Image: Wikimedia Commons [SangyaPundir](#) CC-BY-SA

# Practical solutions – reward data sharing

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- REgistry of REsearch Data REpositories

<http://www.re3data.org/>



- Joint Declaration of Data Citation Principles =  
24 Feb 2014

<https://www.force11.org/group/joint-declaration-data-citation-principles-final>



# Community action

- Themes
  - **Eliminate the use of journal-based metrics**, such as Journal Impact Factors, in funding, appointment, and promotion considerations;
  - The need to **assess research on its own merits** rather than on the basis of the journal in which the research is published; and
  - The need to **capitalize on the opportunities provided by online publishing**
  - >12,500 individuals & >900 organisations



Download the  
Declaration (PDF)

Download the DORA  
Logo (PDF)

Download the DORA  
Poster (PDF)

**San Francisco Declaration on Research  
Assessment**

<http://www.ascb.org/dora/>



# Publishers are getting on board

Funders and publishers are joining forces to help promote DORA



<http://www.nature.com/news/announcement-nature-journals-support-the-san-francisco-declaration-on-research-assessment-1.21882>

## Research in progress blog

[About this blog](#)

### BioMed Central and SpringerOpen sign the San Francisco Declaration on Research Assessment

More information relating to this announcement can be found [here](#).

[Rachel Burley](#) 26 Apr 2017



<http://blogs.biomedcentral.com/bmcblog/2017/04/26/biomed-central-and-springeropen-sign-the-san-francisco-declaration-on-research-assessment/>



# Some universities as well

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- University College London – 20 January 2015
  - <http://www.ucl.ac.uk/news/staff/staff-news/0115/16012015-ucl-signs-declaration-on-research-assessment>
- University of Bern - 29 January 2016
  - [http://www.unibe.ch/university/services/university\\_library/services/electronic\\_publishing/open\\_access/leru\\_und\\_dora/index\\_eng.html](http://www.unibe.ch/university/services/university_library/services/electronic_publishing/open_access/leru_und_dora/index_eng.html)
- Imperial College London – 8 February 2017
  - [http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news\\_8-2-2017-12-28-7](http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news_8-2-2017-12-28-7)
- Birkbeck University of London – 21 March 2017
  - <http://www.bbk.ac.uk/news/birkbeck-signs-san-francisco-declaration-on-research-assessment>
- Signing DORA is one thing. Implementing it is another.

# Universities are starting to reward ‘openness’

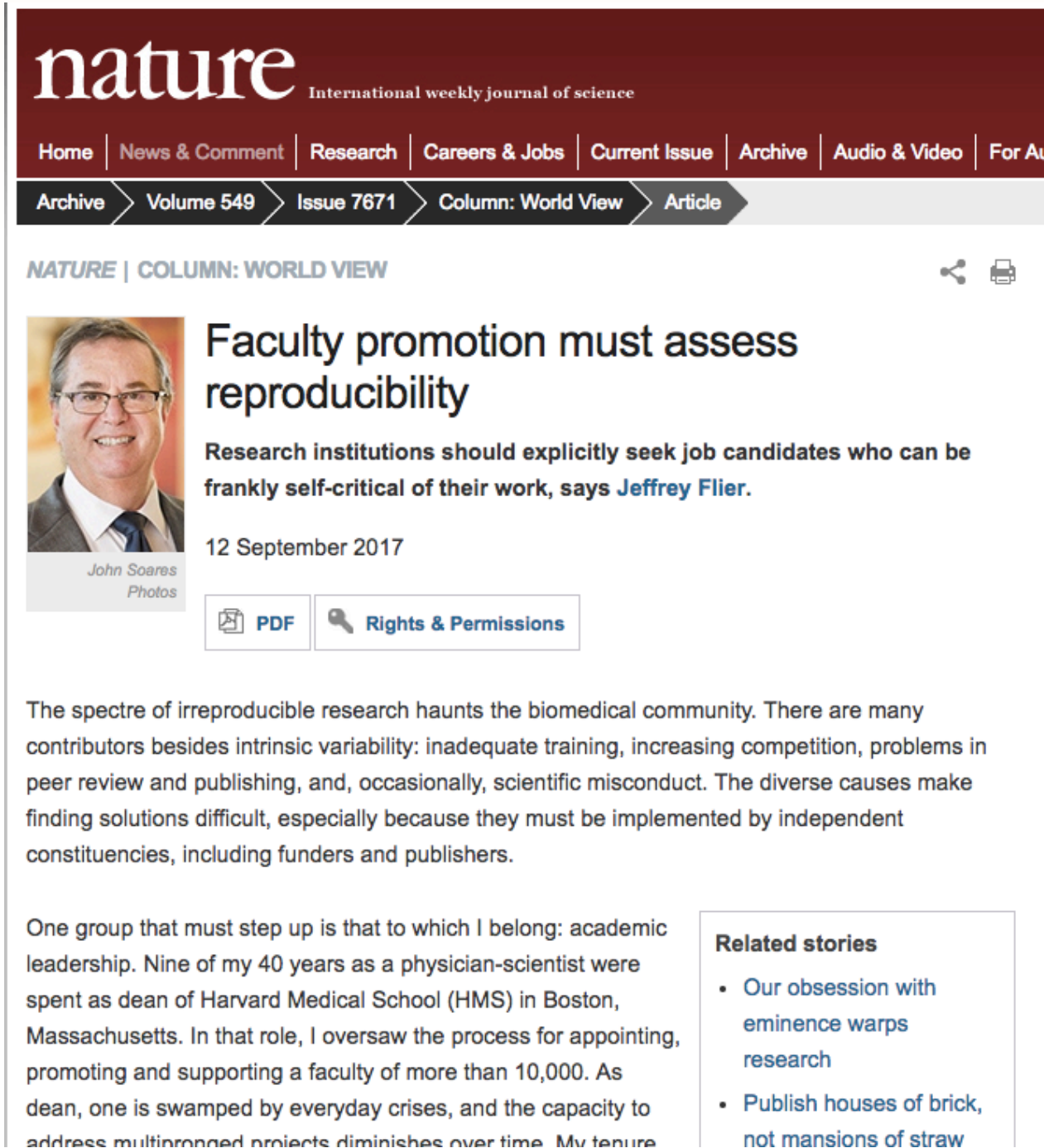
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- “Mandatory policy without rights retention but linked to assessment procedures” (since 2008)
  - University of Liege
  - <http://openaccess.eprints.org/index.php?/archives/853-The-Liege-ORBi-model-Mandatory-policy-without-rights-retention-but-linked-to-assessment-procedures.html>
- “Rewarding open access scholarship in promotion and tenure” July/August 2016
  - Indiana University-Purdue University Indianapolis
  - <http://crln.acrl.org/index.php/crlnews/article/view/9518/10823>
- Research project: “Motivating Open Practices Through Faculty Review and Promotion”
  - OOO Canada Research Network
  - [http://www.oocanada.ca/motivating\\_open\\_practices\\_rpt](http://www.oocanada.ca/motivating_open_practices_rpt)





# A call to arms – 12 Sept 2017



**nature** International weekly journal of science

Home | News & Comment | Research | Careers & Jobs | Current Issue | Archive | Audio & Video | For Authors

Archive | Volume 549 | Issue 7671 | Column: World View | Article

NATURE | COLUMN: WORLD VIEW

**Faculty promotion must assess reproducibility**

Research institutions should explicitly seek job candidates who can be frankly self-critical of their work, says **Jeffrey Flier**.

12 September 2017

John Soares Photos

PDF Rights & Permissions

The spectre of irreproducible research haunts the biomedical community. There are many contributors besides intrinsic variability: inadequate training, increasing competition, problems in peer review and publishing, and, occasionally, scientific misconduct. The diverse causes make finding solutions difficult, especially because they must be implemented by independent constituencies, including funders and publishers.

One group that must step up is that to which I belong: academic leadership. Nine of my 40 years as a physician-scientist were spent as dean of Harvard Medical School (HMS) in Boston, Massachusetts. In that role, I oversaw the process for appointing, promoting and supporting a faculty of more than 10,000. As dean, one is swamped by everyday crises, and the capacity to address multitracked projects diminishes over time. My tenure

**Related stories**

- Our obsession with eminence warps research
- Publish houses of brick, not mansions of straw

- One group that must step up is that to which I belong: academic leadership.
- Academic institutions can and must do better. We should be taking multiple approaches to make science more reliable. One of the most effective (but least discussed) is to **change how we appoint and promote our faculty members**.
- Our processes should encourage evaluators to say whether they feel candidates' work is problematic or overstated, and whether it has been reproduced and broadly accepted.

# Lots of work to be done

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Images by Danny Kingsley

# Questions/Discussion

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Thanks!

**Dr Danny Kingsley**

Head of Scholarly Communication

University of Cambridge

**@dannykay68**

